SECTION 801

FERTILIZING

801.1 Description. This work shall consist of the application of lime and commercial fertilizer and soil preparation for seeding and sodding on areas shown on the plans or designated by the engineer.

801.2 Material.

801.2.1 Material used for soil neutralization, unless otherwise specified, shall be agricultural lime with not less than 90 percent passing the No. 8 (2.36 mm) sieve and containing not less than 65 percent calcium carbonate equivalent.

801.2.2 The rate of application of lime shall be that required to provide at least the quantity of effective neutralizing material per acre (hectare) specified in the contract. Except as otherwise provided in this specification, the quantity of material required to provide the specified pounds (kilograms) of effective neutralizing material per acre (hectare) shall be determined from the producer or distributor's certification of analysis furnished by the Director of the Missouri Agriculture Experiment Station, Columbia, Missouri in accordance with the Missouri Agricultural Liming Materials Act.

801.2.2.1 When agricultural lime is to be furnished from a source that has not been tested and certified in accordance with the Missouri Agricultural Liming Materials Act, the contractor shall notify the engineer at least 30 days prior to application of agricultural lime to permit sampling, testing and determination of the required rate of application. The engineer will determine the effective neutralizing material per ton of liming material by the following formula:

$$\text{ENGLISH E.N.M.} = \frac{\%\ \text{C.C.E.}}{100} \times \frac{\text{Fineness Factor}}{100} \times 800$$

where: E.N.M. is the Effective Neutralizing Material per ton. % C.C.E. is the percent Calcium Carbonate Equivalent as determined by Association of Official Analytical Chemists (AOAC) methods of analysis. Fineness Factor = (% passing No. 8 sieve and retained on the No. 40 x 0.25) + (% passing No. 40 sieve and retained on the No. 60 x 0.60) + (% passing No. 60). Gradation will be determined in accordance with AOAC wet sieving methods. The 800 is a constant representing the theoretical maximum quantity of calcium in one ton of lime.

$$\text{METRIC E.N.M.} = \frac{\%\ \text{C.C.E.}}{100} \times \frac{\text{Fineness Factor}}{100} \times 882$$

where: E.N.M. is the Effective Neutralizing Material per megagram. % C.C.E. is the percent Calcium Carbonate Equivalent as determined by Association of Official Analytical Chemists (AOAC) methods of analysis. Fineness Factor = (% passing 2.36 mm sieve and retained on the 425 µm x 0.25) + (% passing 425 µm sieve and retained on the 250 µm x 0.60) + (% passing 250 µm). Gradation will be determined in accordance with AOAC wet sieving

methods. The 882 is a constant representing the theoretical maximum quantity of calcium in one megagram of lime.

801.2.2.2 If agricultural lime is furnished as a commercially bagged product, pelletized or otherwise, with a guaranteed product analysis shown on the bag listing the elemental properties and gradation, the E.N.M. shall be calculated in accordance with Sec 801.2.2.1. Material may be accepted on the basis of bag label analysis.

801.2.3 Fertilizer shall be a standard commercial product which, when applied at the proper rate, will supply the quantity of total nitrogen (N), available phosphoric acid ($P_2 0_5$) and soluble potash ($K_2 0$), as specified in the contract. Material may be accepted on the basis of bag label analysis or supplier's certification and shall comply with all applicable Missouri fertilizer laws.

801.3 Equipment. Lime and commercial fertilizer shall be applied by mechanical equipment designed for this purpose.

801.4 Construction Requirements.

801.4.1 The area to be limed and fertilized will be the area specified within the limits of construction; shall have a uniform surface free from rills, washes and depressions; and shall conform to the finished grade and cross section as shown on the plans. The soil shall be thoroughly broken up, worked, tilled and loosened to a minimum depth of 2 inches (50 mm). The seedbed or sodbed shall be prepared by loosening the existing soil on the slope, rather than by the addition of loose soil.

801.4.2 Lime and fertilizer shall be applied evenly at the rates specified in the contract and only when the soil is in a tillable condition. After application, the lime and fertilizer shall be mixed into the soil by disking, harrowing or raking to a minimum depth of 2 inches (50 mm) unless applied hydraulically on slopes steeper than 2:1 (1:2) in accordance with Sec 805.3.2.1.

801.4.3 Lime and fertilizer shall be applied separately, but may be incorporated into the soil in one operation.

801.4.4 Lime and fertilizer shall be applied not more than 48 hours before the seed is sown unless otherwise authorized by the engineer.

801.5 Method of Measurement. Measurement of the area which has been limed and fertilized will be made to the nearest 1/10 acre (0.1 hectare).

801.6 Basis of Payment. The accepted quantity of liming and fertilizing will be paid for at the contract unit price. No direct payment will be made for liming and fertilizing areas for which seeding or sodding items are included in the contract.